A preliminary study on the

Consistency of Self-reported Drug Use and Urinalysis Results

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Abstract

This study analyzed the consistency between retrospective self-reported drug use and urinalysis results for a subsample of clients participating in Chicago's Target Cities project. The results indicate that there was a moderate to high concordance between the two measures. When they disagreed, the discordance was most likely caused by measurement discrepancies between the common laboratory standards ("effective window") used for urine testing and dichotomous self-reported drug use (use vs. no use) within the same "effective window."

Importance of the Study

- The majority of drug research relies on self-reported retrospective information to define drug use behaviors. There is usually a concern, however, that the self-reported drug use may be biased.
- It is useful to have some other source of information to help validate the self reported measures. One of the most common methods of validation is to compare self reported recency of substance use with a urine test result for the same substance.
- Unfortunately both self-reported drug use and drug urine tests are fallible and may disagree. This study examined the concordance and magnitude of disagreement of the two measures.

Previous Study Findings: Self-Report

Self-reported drug use results may vary depending on survey constructions and respondents' personal factors, including:

- type of drug used
- characteristics of the sample surveyed
- interview setting
- questionnaire construction
- respondent's reporting errors

Previous Study Findings: Urinalysis

Some of the common problems cited with urine tests include:

- Among known users, the metabolite levels for some drugs can fluctuate (particularly marijuana) depending on time of day, activity, food, medications, and water consumption; while there are quantitative tests to assess this, few researchers use them because of costs.
- Urine tests can be altered or substituted; while temperature, cretin, PH, specific gravity and other tests can be used to detect it, they are rarely done because of cost.
- Heavy past use and recent light use can come out with the same urine test results, making it unreliable as a direct measure of recency.

Data Source: Persistent Effects of Treatment Study (PETS) in Chicago

- 1,326 participants were originally recruited at intake to 12 drug treatment facilities or central intake units on Chicago's West Side as part of a Target Cities Demonstration Project
- Approximately the same number were sampled from each of six treatment modalities: halfway house, outpatient, intensive outpatient, methadone maintenance, short-term and long-term inpatient.
- Participants were surveyed at intake, 6, 18, 24, 36, 48 and 60 months after intake (94% or higher follow-up)
- Urine testing was done with a random sample of participants being interviewed at 36-months (n=150) and 48 months (n=109) (90% or higher completion)

Measures of Recent Drug Use

- Self-reported Reported Recency of Use was collected from the Augmented Addiction Severity Index (A-ASI) and the client was asked “How many days has it been since you last used (substance name)?”

- Urine samples were tested by an independent laboratory at NIDA/OAS recommended cut offs for the presence of metabolites related to marijuana, cocaine, opiates, as well as temperature and cretin levels (to check for substitution or alteration)

Specifications for What the Urine Test Are Supposed to Measure

drug types identified by urine-test	*effective window of drug test*	*drug-use measured by self-report*
Cocaine	up to 3 days	Cocaine (all forms)
		Base cocaine
		Crack
		Powder cocaine
Opiates*	up to 4 days	Opiates/analgesics
		Heroin
		Dilaudid
		Karachi
		Other opiates
Marijuana		Marijuana
Casual use	up to 4 days	Cannabis
Chronic use	up to 14 days	Hashish

* Results may be confounded by some medications and foods

Table 1. Sample Characteristics: Demographics and Socioeconomics

Variables		Percent	N[1]
Demographics			
Gender:	Male	38%	99
	Female	62%	159
Age group (years):	21-24	4%	11
	25-34	27%	68
	35-44	47%	120
	45+	22%	55
Race/ethnicity:	Af.-Am.	89%	231
	Hispanics	6%	16
	White	3%	8
	Others	2%	4
Marital status:	Never married	56%	143
	Married	13%	34
	Divorced	16%	40
	Sep./widowed	15%	37
Socioeconomic Status			
Homeless:	No	86%	218
	Yes	14%	35
Welfare recipients:	No	24%	53
	Yes(isps/ssi/medicaid)	76%	169
Education:	Grade school	49%	128
	High school graduate	28%	73
	Above high school	22%	58
Employment:	Employed	51%	131
	Unemployed	42%	109
	Other	7%	17

[1] Total N may not add up to 259 because of missing data.

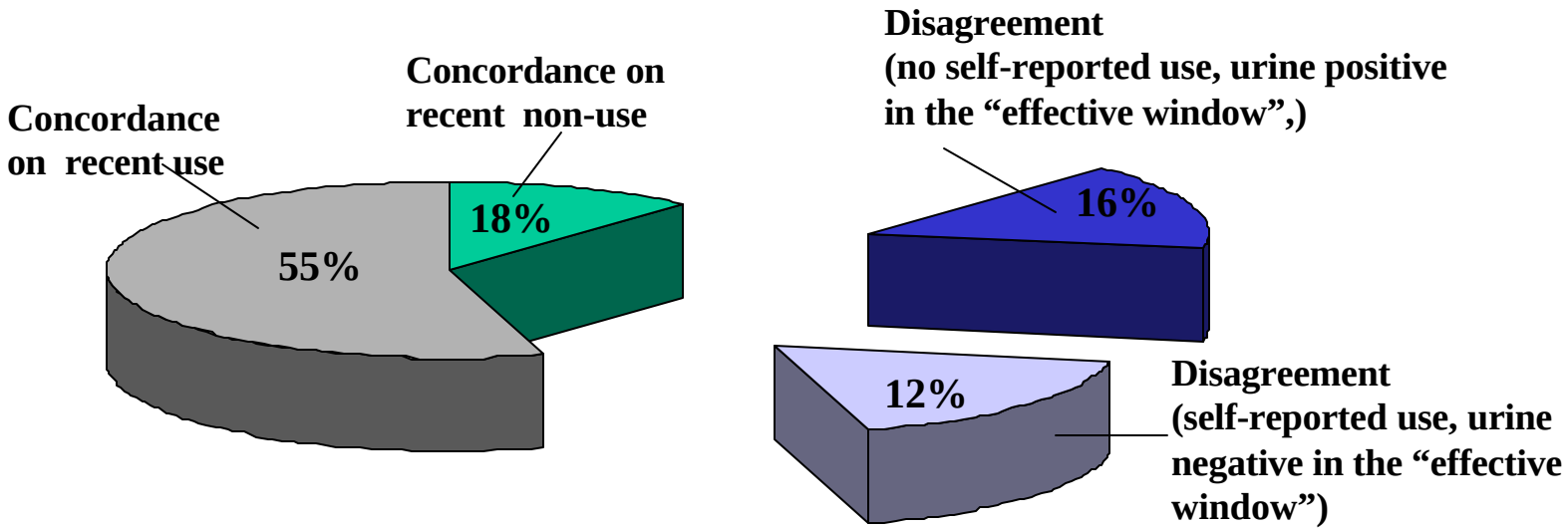
Table 2. Sample Characteristics: Drug Use and Criminal Justice

Variables		Percent	N[1]
Drug treatment			
Follow-up wave:	36-month	58%	150
	48-month	42%	109
Treatment Referral:	Family	81%	38
	Self	2%	1
	Others[2]	17%	8
Drug dependence:	No abuse	14%	35
	Abuse	44%	113
	Mild dep.	10%	25
	Moderate dep.	19%	49
	Severe dep.	14%	35
Criminal Justice Status			
Illegal incomes:	No	88%	211
	Yes	12%	29
Legal status:	No legal status	80%	208
	Probation/parole/case pending	20%	51
Crime:	No	84%	216
	Yes	16%	40
Gang members:	No	76%	194
	Ever been members	24%	62

[1] Total N may not add up to 259 because of missing data.

[2] Others include health care providers, friends, and others.

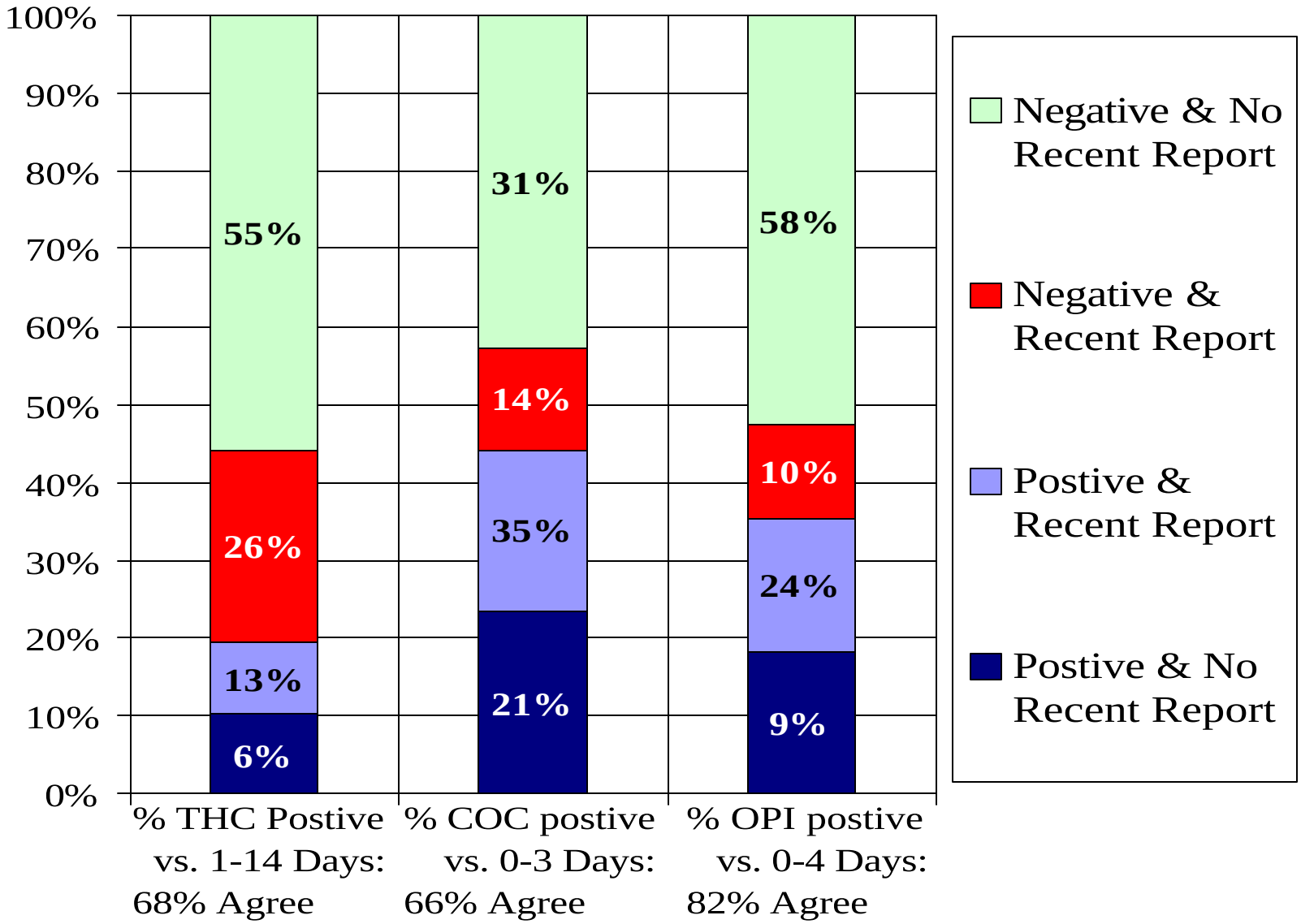
Concordance of self-reported drug use and urinalysis results*



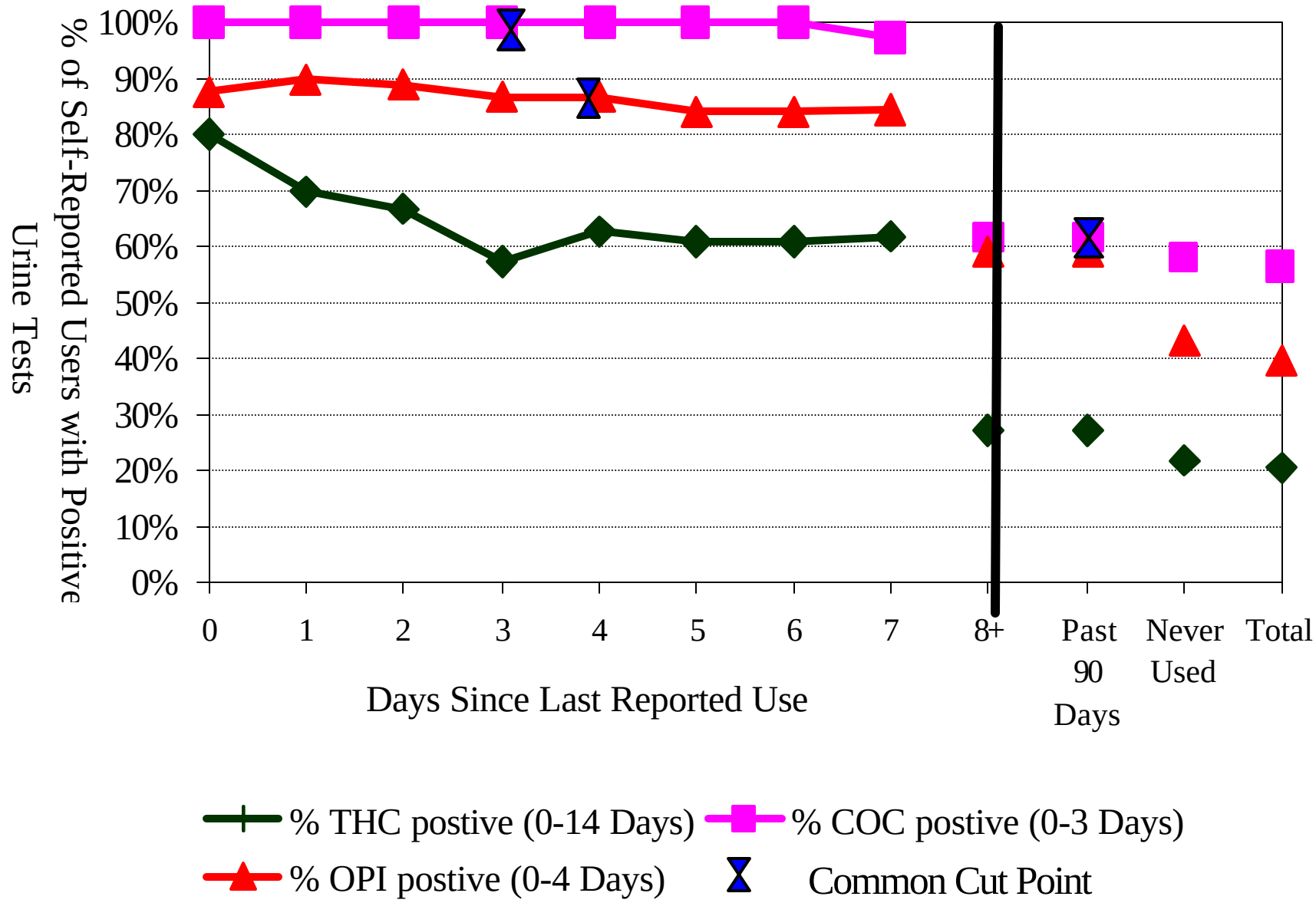
Self reported drug use rate: 67%
Urine - test positive rate: 71%
Total concordance rate: 73%

*Includes cocaine, opiates, and marijuana (chronic use)

Concordance of Self-Reported Drug Use and Urinalysis Results: By Drug Type



Percentage of Positive Urine Tests by Days Since Last Reported Use



Discussion

- There was moderate to high agreement between the self-reported drug use and positive urine, averaging 73% and varying from 68% to 82% by drug type.
- For marijuana, where they disagree, most cases self-reported drug use but had negative urines within the “effective window” of the test (26% vs. 6%).
- For cocaine use, where they disagree, more of the subjects did not report drug use but had positive urines (21% vs. 14%).
- For opiate use, where they disagree, the rate of self-reported use and negative urines was approximately equal with the rate of no self-reported use and positive urines.

Conclusion

The common laboratory standards for urine testing were designed to produce a high rate of detection if drug use occurred during the specified window. Drug effects could last longer (and/or shorter for marijuana) than the standard industrial cut points (days) used. In addition, self-report survey questionnaires are often designed to capture a dichotomous status (use or no use) within the "effective window." This measurement discrepancy between self-report and urinalysis is most likely the major source of disagreement detected in this study.

Limitations

- The sample size is small. Therefore, the study results may or may not hold in replication.
- The sampling procedure is clustered on the treatment modality. Therefore the study results may not be directly generalizable to other drug treatment populations.
- Urine test results could be confounded by some medications (especially with opiate use).
- Although the analyses revealed the rate of disagreement between self-report and urinalysis, adequate information is not available to study the underlying cause of the measurement disagreement (e.g., self-report or urinalysis).

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